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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,227	10/22/2001	Gerald Deboy	GR 99 P 1679	8514

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EXAMINER

ROSE, KIESHA L

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,227

Applicant(s)

DEBOY ET AL.

Examiner

Kiesha L. Rose

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 20-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-19 is/are rejected.
- 7) ☒ Claim(s) 5-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4/02,7/02. 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the election filed 27 October 2003.

Election/Restrictions

Claims 20-35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method of making a semiconductor device, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 10/27/03.

Applicant's election of Claims 1-19 in Paper No. 10/27/03 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

Claims 5 and 6 are objected to because of the following informalities: Claims 5 and 6 are identical claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2822

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4,7-9,11-15 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barret et al. (U.S. Patent 5,780,895) in view of Nandakumar et al. (U.S. Patent 5,296,725).

Barret discloses a vertical semiconductor component (Fig. 3) that contains a substrate (0) of a first conductivity (N) having a first and second side, an insulating layer (8) covering first side and having a side remote from substrate, a more highly doped layer (11) of first conductivity applied on second side, a metallic drain contact (12) applied on the more highly doped layer, a metallic gate contact, a multiplicity of MOS cells on first side of substrate for forming a first semiconductor switch, each MOS cell having a first well (1) of the second conductivity (P) and being introduced into the substrate and reaching first side and extending orthogonally from the first side to the second side, a first metallic source contact (3) extended through insulating layer, a first source (2) of first conductivity being incorporated into well and having a potential, reaching to first side of substrate and connecting to first source metallic contact, a first gate (6) on side of insulating layer remote to the substrate and partly covering well and connecting to metallic gate contact, a plurality of further MOS cells identical to multiplicity of MOS cells having a second well, source, gate and source contact and connected in a cascaded manner. Barret discloses all the limitations except for a region incorporated in the substrate of second conductivity type. Whereas Nandakumar discloses a switching device (Figs. 3 and 6b) that contain a substrate with a drain region (14) with a drain contact (13), a well (34) with a source region (40) a gate (38) and a

Art Unit: 2822

region (33) of second conductivity type laterally insulated and formed orthogonally and incorporated into the substrate by a cascaded manner and holds charge and reaching to the first side and electrically connected to the gate in the MOS cell and having a potential floating relative to the potential of the source where a space charge zone is defined between the MOS cells and region, the region is surrounded by the MOS cells to form a switching device and a MOS cell is surrounded by the region (Fig. 6b). The region is formed to act as diverter and provides the mean of the turn-on and turn-off controls. (Column 8, lines 8-10) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor component by incorporating a region as a diverter and to control turn-on and turn-off of the device as taught by Nandakumar.

Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barret, Nandakumar as applied to claims 1,2 and 7 above, and further in view of Liao et al. (U.S. Patent 6,359,309).

Barret and Nandakumar disclose all the limitations except for a lateral insulation between MOS cells. Whereas Liao discloses a power device (Fig. 3) that contains MOS cells with a lateral insulation (4) formed therebetween. The lateral insulation is formed so when power is applied to gate a channel is formed and the device is turned on. (Column 1, lines 43-45) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the devices of Barret and Nandakumar by incorporating a lateral insulation to provide a voltage to turn the device on as taught by Liao.

Art Unit: 2822

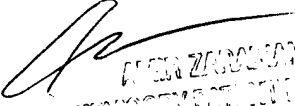
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 571-272-1844. The examiner can normally be reached on M-F 8:30-6:00 off 2nd Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KLR
KLR


AMIR ZARABIAN
SUPERVISOR, PATENT EXAMINER
TECHNICAL CENTER